



The Secretary of Energy

Washington, DC 20585

May 6, 1998

Mr. Joe B. Foster
Chair
National Petroleum Council
1625 K Street, N.W.
Washington, D.C. 20006

Dear Mr. Foster:

In 1992, the National Petroleum Council released a study entitled, "Potential of Natural Gas in the United States." That study was critical in identifying natural gas as an abundant domestic resource that can make a significantly larger contribution to both this Nation's energy supply and its environmental goals.

Since the release of the study, the Nation has experienced five years of sustained growth in the use of natural gas. In addition, the study did not anticipate at least two major forces that are beginning to take shape, which will profoundly affect energy choices in the future -- the restructuring of electricity markets and growing concerns about the potentially adverse consequences that using higher carbon-content fuels may have on global climate change and regional air quality. These issues offer opportunities and challenges for our Nation's natural gas supply and delivery system. For a secure energy future, Government and private sector decision makers need to be confident that industry has the capability to meet potentially significant increases in future natural gas demand.

Accordingly, I am requesting that the Council reassess its 1992 study taking into account the past five years' experience and evolving market conditions that will affect the potential for natural gas in the United States to 2020 and beyond. Of particular interest is the Council's advice on areas of Government policy and action that would enable natural gas to realize its potential contribution toward our shared economic, energy, and environmental goals.

Given the significance of this request, Deputy Secretary Elizabeth Moler will co-chair the study committee. I offer my gratitude to the Council for its efforts since our meeting in December 1997, to assist the Department in defining a more concise study scope. The breadth of issues related to natural gas supply and demand is vast and I recognize that further refinements in scope may be necessary once the study is underway to address the most significant concerns about future natural gas availability.

Sincerely,

A handwritten signature in black ink, which appears to read "Federico Peña", is positioned above the printed name.

Federico Peña



The Secretary of Energy

Washington, DC 20585

November 18, 1998

Mr. Joe B. Foster
Chair
National Petroleum Council
1625 K Street, N.W.
Washington, D.C. 20006

Dear Mr. Foster:

This is to convey my approval to establish a Committee on Natural Gas and to appoint industry members as proposed in your letter of October 6, 1998. I also approve the establishment of a coordinating subcommittee and the appointment of subcommittee members identified in your letter.

The Deputy Secretary will serve as the Government co-chair of the committee; the Assistant Secretary for Fossil Energy will co-chair the coordinating subcommittee. Staff involved in this study will be from the Office of Fossil Energy and the Office of Policy and International Affairs. In addition, the Energy Information Administration has expressed an interest in providing technical and analytic support. The Deputy Assistant Secretary for Natural Gas and Petroleum Technology will serve as the alternate for the Government co-chair of the subcommittee.

I agree that it would be appropriate for a representative of the Department of the Interior to be a member of the coordinating subcommittee, and we are pursuing this issue.

For a secure energy future, Government and private sector decision-makers need to be confident that industry has the capability to meet the significant increases in natural gas demand forecasted for the twenty-first century. I am pleased that the National Petroleum Council recognizes the challenge facing the domestic natural gas industry and has agreed to conduct a study of natural gas supply availability. I look forward to the study's results.

Yours sincerely,

A handwritten signature in black ink, reading "Bill Richardson", is positioned above the printed name.

Bill Richardson

NATIONAL PETROLEUM COUNCIL

BACKGROUND INFORMATION ON THE NATIONAL PETROLEUM COUNCIL

In May 1946, the President stated in a letter to the Secretary of the Interior that he had been impressed by the contribution made through government/industry cooperation to the success of the World War II petroleum program. He felt that it would be beneficial if this close relationship were to be continued and suggested that the Secretary of the Interior establish an industry organization to advise the Secretary on oil and natural gas matters.

Pursuant to this request, Interior Secretary J. A. Krug established the National Petroleum Council (NPC) on June 18, 1946. In October 1977, the Department of Energy was established and the Council was transferred to the new department.

The purpose of the NPC is solely to advise, inform, and make recommendations to the Secretary of Energy on any matter requested by the Secretary, relating to oil and natural gas or the oil and gas industries. Matters that the Secretary would like to have considered by the Council are submitted in the form of a letter outlining the nature and scope of the study. The Council reserves the right to decide whether it will consider any matter referred to it.

Examples of recent studies undertaken by the NPC at the request of the Secretary include:

- *Emergency Preparedness for Interruption of Petroleum Imports into the United States* (1981)
- *U.S. Arctic Oil & Gas* (1981)
- *Environmental Conservation – The Oil & Gas Industries* (1982)
- *Third World Petroleum Development: A Statement of Principles* (1982)
- *Petroleum Inventories and Storage Capacity* (1983, 1984)
- *Enhanced Oil Recovery* (1984)
- *The Strategic Petroleum Reserve* (1984)
- *U.S. Petroleum Refining* (1986)
- *Factors Affecting U.S. Oil & Gas Outlook* (1987)
- *Integrating R&D Efforts* (1988)
- *Petroleum Storage & Transportation* (1989)
- *Industry Assistance to Government – Methods for Providing Petroleum Industry Expertise During Emergencies* (1991)
- *Short-Term Petroleum Outlook – An Examination of Issues and Projections* (1991)
- *Petroleum Refining in the 1990s – Meeting the Challenges of the Clean Air Act* (1991)
- *The Potential for Natural Gas in the United States* (1992)
- *U.S. Petroleum Refining – Meeting Requirements for Cleaner Fuels and Refineries* (1993)
- *The Oil Pollution Act of 1990: Issues and Solutions* (1994)
- *Marginal Wells* (1994)
- *Research, Development, and Demonstration Needs of the Oil and Gas Industry* (1995)
- *Future Issues – A View of U.S. Oil & Natural Gas to 2020* (1995)
- *Issues for Interagency Consideration – A Supplement to the NPC's Report: Future Issues – A View of U.S. Oil & Natural Gas to 2020* (1996)
- *U.S. Petroleum Product Supply—Inventory Dynamics* (1998).

The NPC does not concern itself with trade practices, nor does it engage in any of the usual trade association activities. The Council is subject to the provisions of the Federal Advisory Committee Act of 1972.

Members of the National Petroleum Council are appointed by the Secretary of Energy and represent all segments of the oil and gas industries and related interests. The NPC is headed by a Chair and a Vice Chair, who are elected by the Council. The Council is supported entirely by voluntary contributions from its members.

NATIONAL PETROLEUM COUNCIL

NATIONAL PETROLEUM COUNCIL

**MEMBERSHIP
(158)**

December 15, 1999

1625 K Street, N.W.
Suite 600
Washington, D.C. 20006

Telephone:
(202) 393-6100

NATIONAL PETROLEUM COUNCIL

MEMBERSHIP

1998/1999

Jacob Adams
President
Arctic Slope Regional Corporation

George A. Alcorn
President
Alcorn Exploration, Inc.

Ben Alexander
President
Dasco Energy Corporation

Robert J. Allison, Jr.
Chairman and
Chief Executive Officer
Anadarko Petroleum Corporation

Robert O. Anderson
Roswell, New Mexico

Philip F. Anschutz
President
The Anschutz Corporation

Robert G. Armstrong
President
Armstrong Energy Corporation

O. Truman Arnold
Chairman of the Board, President
and Chief Executive Officer
Truman Arnold Companies

Ralph E. Bailey
Chairman and
Chief Executive Officer
Xpronet Inc.

D. Euan Baird
Chairman, President and
Chief Executive Officer
Schlumberger Limited

William W. Ballard
President
Ballard Petroleum, L.L.C.

Michael L. Beatty
Michael L. Beatty & Associates
Denver, Colorado

Riley P. Bechtel
Chairman and
Chief Executive Officer
Bechtel Group, Inc.

Victor G. Beghini
Former President
Marathon Oil Company

David W. Biegler
President and
Chief Operating Officer
TXU

Peter I. Bijur
Chairman of the Board and
Chief Executive Officer
Texaco Inc.

Frank Bishop
Executive Director
National Association of
State Energy Officials

Jack S. Blanton
President and
Chief Executive Officer
Eddy Refining Company

Carl E. Bolch, Jr.
Chairman and
Chief Executive Officer
Racetrac Petroleum, Inc.

John F. Bookout
Chairman, President and
Chief Executive Officer
Contour Energy Co.

NATIONAL PETROLEUM COUNCIL

Mike R. Bowlin
Chairman of the Board, President
and Chief Executive Officer
Atlantic Richfield Company

William E. Bradford
Chairman of the Board
Halliburton Company

Charles T. Bryan
President and
Chief Executive Officer
DeGolyer and MacNaughton Inc.

Frank M. Burke, Jr.
Chairman and
Chief Executive Officer
Burke, Mayborn Company, Ltd.

Bill Burton
Partner
Jones, Day, Reavis & Pogue

Robert H. Campbell
Chairman and
Chief Executive Officer
Sunoco, Inc.

Philip J. Carroll
Chairman and
Chief Executive Officer
Fluor Corporation

R. D. Cash
Chairman, President and
Chief Executive Officer
Questar Corporation

Robert B. Catell
Chairman and
Chief Executive Officer
KeySpan Energy

Paul W. Chellgren
Chairman of the Board and
Chief Executive Officer
Ashland Inc.

Richard B. Cheney
President and
Chief Executive Officer
Halliburton Company

Danny H. Conklin
Partner
Philcon Development Co.

Luke R. Corbett
Chairman and
Chief Executive Officer
Kerr-McGee Corporation

Michael B. Coulson
President
Coulson Oil Co.

Gregory L. Craig
President
Cook Inlet Energy Supply

Hector J. Cuellar
Managing Director
Area/Industries Manager
Bank of America

Robert Darbelnet
President and
Chief Executive Officer
AAA

George A. Davidson, Jr.
Chairman of the Board and
Chief Executive Officer
Consolidated Natural Gas Company

Claiborne P. Deming
President and
Chief Executive Officer
Murphy Oil Corporation

Kenneth T. Derr
Chairman of the Board and
Chief Executive Officer
Chevron Corporation

Cortlandt S. Dietler
President and
Chief Executive Officer
TransMontaigne Oil Company

David F. Dorn
Chairman Emeritus
Forest Oil Corporation

Archie W. Dunham
Chairman, President and
Chief Executive Officer
Conoco Inc.

NATIONAL PETROLEUM COUNCIL

Daniel C. Eckermann
President and
Chief Executive Officer
LeTourneau, Inc.

James W. Emison
President
Western Petroleum Company

Ronald A. Erickson
Chief Executive Officer
Holiday Companies

Donald L. Evans
Chairman of the Board and
Chief Executive Officer
Tom Brown, Inc.

John G. Farbes
President
Big Lake Corporation

Richard D. Farman
Chairman and
Chief Executive Officer
Semptra Energy

Thomas G. Finck
Independent Oil and Gas Producer
Vero Beach, Florida

Thomas L. Fisher
Chairman, President and
Chief Executive Officer
Nicor Inc.

William L. Fisher
Leonidas T. Barrow Chair in
Mineral Resources
Department of Geological Sciences
University of Texas at Austin

James C. Flores
Chairman of the Board
Ocean Energy, Inc.

Douglas L. Foshee
President and
Chief Executive Officer
Nuevo Energy Company

Joe B. Foster
Chairman and
Chief Executive Officer
Newfield Exploration Company

Dod Fraser
Managing Director and
Group Executive
Global Oil and Gas Group
Chase Manhattan Bank

Robert W. Fri
Director
The National Museum of
Natural History
Smithsonian Institution

H. Laurance Fuller
Co-Chairman
BP Amoco, p.l.c.

Barry J. Galt
Retired Chairman and
Chief Executive Officer
Ocean Energy, Inc.

Robert P. Gannon
Chairman of the Board, President
and Chief Executive Officer
Montana Power Company

James A. Gibbs
President
Five States Energy Company

Alfred R. Glancy III
Chairman, President and
Chief Executive Officer
MCN Energy Group Inc.

Bruce C. Gottwald
Chairman and
Chief Executive Officer
Ethyl Corporation

S. Diane Graham
Chairman and
Chief Executive Officer
STRATCO, Inc.

Gilbert M. Grosvenor
Chairman of the Board
National Geographic Society

Ron W. Haddock
President and
Chief Executive Officer
FINA, Inc.

NATIONAL PETROLEUM COUNCIL

Frederic C. Hamilton
Chairman
The Hamilton Companies

Thomas M. Hamilton
Chairman, President and
Chief Executive Officer
EEX Corporation

Christine Hansen
Executive Director
Interstate Oil and Gas Compact Commission

Michael F. Harness
President
Osyka Corporation

Roger R. Hemminghaus
Chairman of the Board
Ultramar Diamond Shamrock Corp.

John B. Hess
Chairman of the Board and
Chief Executive Officer
Amerada Hess Corporation

Jack D. Hightower
Chairman of the Board, President
and Chief Executive Officer
Titan Exploration, Inc.

Jerry V. Hoffman
Chairman, President and
Chief Executive Officer
Berry Petroleum Co.

Roy M. Huffington
Chairman of the Board and
Chief Executive Officer
Roy M. Huffington, Inc.

Ray L. Hunt
Chairman of the Board
Hunt Oil Company

James M. Hutchison
President
HUTCO Inc.

Frank J. Iarossi
Chairman
American Bureau of Shipping &
Affiliated Companies

A. V. Jones, Jr.
Chairman
Van Operating, Ltd.

Jon Rex Jones
Chairman
EnerVest Management Company, L. C.

Jerry D. Jordan
President
Jordan Energy Inc.

Fred C. Julander
President
Julander Energy Company

Peter H. Kelley
President and
Chief Operating Officer
Southern Union Company

Robert Kelley
Chairman, President and
Chief Executive Officer
Noble Affiliates, Incorporated

Bernard J. Kennedy
Chairman, President and
Chief Executive Officer
National Fuel Gas Company

Fred Krupp
Executive Director
Environmental Defense Fund

Ronald L. Kuehn, Jr.
Chairman
El Paso Energy Corporation

Susan M. Landon
Partner
Thomasson Partner Associates

Kenneth L. Lay
Chairman and
Chief Executive Officer
Enron Corp.

Stephen D. Layton
President and
Chief Executive Officer
Equinox Oil Company

NATIONAL PETROLEUM COUNCIL

Virginia B. Lazenby
Chairman and
Chief Executive Officer
Bretagne G.P.

David L. Lemmon
President and
Chief Executive Officer
Colonial Pipeline Company

John H. Lichtblau
Chairman and
Chief Executive Officer
Petroleum Industry Research
Foundation, Inc.

Daniel H. Lopez
President
New Mexico Institute of
Mining and Technology

Thomas E. Love
Chairman and
Chief Executive Officer
Love's Country Stores, Inc.

Max L. Lukens
Chairman and
Chief Executive Officer
Baker Hughes Incorporated

Ferrell P. McClean
Managing Director
J. P. Morgan & Co. Incorporated

William T. McCormick, Jr.
Chairman and
Chief Executive Officer
CMS Energy Corporation

Cary M. Maguire
President
Maguire Oil Company

Frederick R. Mayer
Chairman
Captiva Resources, Inc.

F. H. Merelli
Chairman and
Chief Executive Officer
Key Production Company

C. John Miller
Chief Executive Officer
Miller Energy, Inc.

Steven L. Miller
Chairman, President and
Chief Executive Officer
Shell Oil Company

Claudie D. Minor, Jr.
President and
Chief Executive Officer
Premier Energy Supply Corp.

George P. Mitchell
Chairman of the Board and
Chief Executive Officer
Mitchell Energy and Development Corp.

James J. Mulva
Chairman of the Board and
Chief Executive Officer
Phillips Petroleum Company

John Thomas Munro
President
Munro Petroleum &
Terminal Corporation

Mark B. Murphy
President
Strata Production Company

J. Larry Nichols
President and
Chief Executive Officer
Devon Energy Corporation

C. R. Palmer
Chairman of the Board, President
and Chief Executive Officer
Rowan Companies, Inc.

Paul H. Parker
Vice President
Center for Resource Management

Robert L. Parker, Sr.
Chairman of the Board
Parker Drilling Company

James L. Pate
Chairman of the Board
PennzEnergy Company

NATIONAL PETROLEUM COUNCIL

Howard Paver
President and
General Manager
BHP Petroleum (Americas) Inc.

L. Frank Pitts
Owner
Pitts Energy Group

Richard B. Priory
Chairman and
Chief Executive Officer
Duke Energy Corporation

Daniel Rappaport
Chairman of the Board
New York Mercantile Exchange

Edward B. Rasmuson
Chairman of the Board and
Chief Executive Officer
National Bank of Alaska

Lee R. Raymond
Chairman, President and
Chief Executive Officer
Exxon Mobil Corporation

Oliver G. Richard III
Chairman, President and
Chief Executive Officer
Columbia Energy Group

Corbin J. Robertson, Jr.
President
Quintana Minerals Corporation

Robert E. Rose
Chairman, President and
Chief Executive Officer
Global Marine Inc.

Henry A. Rosenberg, Jr.
Chairman of the Board and
Chief Executive Officer
Crown Central Petroleum Corporation

A. R. Sanchez, Jr.
Chairman of the Board and
Chief Executive Officer
Sanchez-O'Brien Oil and Gas Corporation

John C. Sawhill
President and
Chief Executive Officer
The Nature Conservancy

Ray Seegmiller
President and
Chief Executive Officer
Cabot Oil and Gas Corporation

S. Scott Sewell
President
Delta Energy Management, Inc.

Donald M. Simmons
President
Simmons Royalty Company

Matthew R. Simmons
President
Simmons and Company International

Arlie M. Skov
President
Arlie M. Skov, Inc.

Arthur L. Smith
Chairman
John S. Herold, Inc.

Bruce A. Smith
President and
Chief Executive Officer
Tesoro Petroleum Companies, Inc.

John C. Snyder
Chairman
Santa Fe Snyder Corporation

Joel V. Staff
Chairman, President and
Chief Executive Officer
National-Oilwell, Inc.

Charles C. Stephenson, Jr.
Chairman of the Board
Vintage Petroleum, Inc.

H. Leighton Steward
Vice Chairman of the Board
Burlington Resources, Inc.

NATIONAL PETROLEUM COUNCIL

Carroll W. Suggs
Chairman of the Board, President
and Chief Executive Officer
Petroleum Helicopters, Inc.

Patrick F. Taylor
Chairman and
Chief Executive Officer
Taylor Energy Company

Richard E. Terry
Chairman and
Chief Executive Officer
Peoples Energy Corporation

Roger E. Tetrault
Chairman of the Board and
Chief Executive Officer
McDermott International, Inc.

Gerald Torres
Associate Dean for Academic Affairs
University of Texas School of Law and
Vice Provost
University of Texas at Austin

H. A. True, III
Partner
True Oil Company

Randy E. Velarde
President
The Plaza Group

Philip K. Verleger, Jr.
PKVerleger, L.L.C.

A. Wesley Ward, Jr.
President
National Association of Black
Geologists and Geophysicists

L. O. Ward
Owner-President
Ward Petroleum Corporation

Deas H. Warley III
Chairman of the Board
and President
Midland Resources, Inc.

C. L. Watson
Chairman of the Board and
Chief Executive Officer
Dynergy Inc.

Rex H. White, Jr.
Austin, Texas

Mary Jane Wilson
President and
Chief Executive Officer
WZI Inc.

Irene S. Wischer
President and
Chief Executive Officer
Panhandle Producing Company

Brion G. Wise
Chairman and
Chief Executive Officer
Western Gas Resources, Inc.

William A. Wise
President and
Chief Executive Officer
El Paso Energy Corporation

George M. Yates
President and
Chief Executive Officer
Harvey E. Yates Company

John A. Yates
President
Yates Petroleum Corporation

Daniel H. Yergin
President
Cambridge Energy Research Associates

Henry Zarrow
Vice Chairman
Sooner Pipe & Supply Corporation

Ronald H. Zech
Chairman, President and
Chief Executive Officer
GATX Corporation

NATIONAL PETROLEUM COUNCIL

COMMITTEE ON NATURAL GAS

CHAIR

Peter I. Bijur
Chairman of the Board and
Chief Executive Officer
Texaco Inc.

VICE CHAIR, SUPPLY

H. Leighton Steward
Vice Chairman of the Board
Burlington Resources, Inc.

EX OFFICIO

Joe B. Foster
Chair
National Petroleum Council
c/o Newfield Exploration Company

GOVERNMENT COCHAIR

T. J. Glauthier
Deputy Secretary
U.S. Department of Energy

**VICE CHAIR, TRANSMISSION &
DISTRIBUTION**

William A. Wise
President and
Chief Executive Officer
El Paso Energy Corporation

EX OFFICIO

Archie W. Dunham
Vice Chair
National Petroleum Council
c/o Conoco Inc.

SECRETARY

Marshall W. Nichols
Executive Director
National Petroleum Council

* * *

Robert J. Allison, Jr.
Chairman and
Chief Executive Officer
Anadarko Petroleum Corporation

Michael L. Beatty
Michael L. Beatty & Associates
Denver, Colorado

David W. Biegler
President and
Chief Operating Officer
TXU

Charles T. Bryan
President and
Chief Executive Officer
DeGolyer and McNaughton

Robert B. Catell
Chairman and
Chief Executive Officer
KeySpan Energy

Richard B. Cheney
President and
Chief Executive Officer
Halliburton Company

Luke R. Corbett
Chairman and
Chief Executive Officer
Kerr-McGee Corporation

Gregory L. Craig
President
Cook Inlet Energy Supply

NPC COMMITTEE ON NATURAL GAS

George A. Davidson, Jr.
Chairman of the Board and
Chief Executive Officer
Consolidated Natural Gas Company

Kenneth T. Derr
Chairman of the Board and
Chief Executive Officer
Chevron Corporation

Donald L. Evans
Chairman of the Board and
Chief Executive Officer
Tom Brown, Inc.

Richard D. Farman
Chairman and
Chief Executive Officer
Semptra Energy Corporation

William L. Fisher
Leonidas T. Barrow Chair in
Mineral Resources
Department of Geological Sciences
University of Texas at Austin

James C. Flores
Chairman of the Board
Ocean Energy, Inc.

H. Laurance Fuller
Co-Chairman
BP Amoco, p.l.c.

Barry J. Galt
Vice Chairman
Seagull Energy Corporation

James A. Gibbs
President
Five States Energy Company

Alfred R. Glancy, III
Chairman, President and
Chief Executive Officer
MCN Energy Group

Christine Hansen
Executive Director
Interstate Oil and Gas
Compact Commission

Jon Rex Jones
Chairman
EnerVest Management Company, L.C.

Jerry D. Jordan
President
Jordan Energy Inc.

Robert Kelley
Chairman, President and
Chief Executive Officer
Noble Affiliates, Incorporated

Fred Krupp
Executive Director
Environmental Defense Fund

Ronald L. Kuehn, Jr.
Chairman
El Paso Energy Corporation

Kenneth L. Lay
Chairman and
Chief Executive Officer
Enron Corp.

Max L. Lukens
Chairman and
Chief Executive Officer
Baker Hughes Incorporated

Steven L. Miller
Chairman, President and
Chief Executive Officer
Shell Oil Company

J. Larry Nichols
President and
Chief Executive Officer
Devon Energy Corporation

C. R. Palmer
Chairman of the Board, President
and Chief Executive Officer
Rowan Companies, Inc.

Robert L. Parker, Sr.
Chairman of the Board
Parker Drilling Company

Richard B. Priory
Chairman and
Chief Executive Officer
Duke Energy Corporation

NPC COMMITTEE ON NATURAL GAS

Lee R. Raymond
Chairman, President and
Chief Executive Officer
Exxon Mobil Corporation

Oliver G. Richard, III
Chairman, President and
Chief Executive Officer
Columbia Energy Group

John C. Sawhill
President and
Chief Executive Officer
The Nature Conservancy

Matthew R. Simmons
President
Simmons and Company International

Arlie M. Skov
President
Arlie M. Skov, Inc.

Richard E. Terry
Chairman and
Chief Executive Officer
Peoples Energy Corporation

Roger E. Tetrault
Chairman of the Board and
Chief Executive Officer
McDermott International, Inc.

H. A. True, III
Partner
True Oil Company

C. L. Watson
Chairman of the Board and
Chief Executive Officer
Dynergy Inc.

Rex H. White, Jr.
Austin, Texas

Mary Jane Wilson
President and
Chief Executive Officer
WZI Inc.

Brion G. Wise
Chairman and
Chief Executive Officer
Western Gas Resources, Inc.

Daniel H. Yergin
President
Cambridge Energy Research Associates

NATIONAL PETROLEUM COUNCIL
COORDINATING SUBCOMMITTEE
OF THE
NPC COMMITTEE ON NATURAL GAS

CHAIR

Rebecca B. Roberts ^{*1}
Strategic Partner
Global Alignment
Texaco Inc.

GOVERNMENT COCHAIR

Robert S. Kripowicz
Principal Deputy Assistant Secretary
Fossil Energy
U.S. Department of Energy

SECRETARY

John H. Guy, IV
Deputy Executive Director
National Petroleum Council

* * *

Collis P. Chandler, Jr. ^{*2}
Chairman of the Board
Chief Executive Officer
Chandler & Associates, Inc.

John W. B. Northington
Senior Advisor to the Director of
the Bureau of Land Management
U.S. Department of the Interior

Thomas A. Fry, III
Acting Director
Bureau of Land Management
U.S. Department of the Interior

Thomas B. Nusz
Vice President
Strategic Planning and Engineering
Burlington Resources, Inc.

J. M. Funk
Consultant
(Shell Oil Company Retired)

Susan B. Ortenstone
President
El Paso Gas Services Company

James W. Hail, Jr.
Executive Vice President
DeGolyer and MacNaughton

Steven M. Philley
Vice President of Energy Supply
Texas Utilities Electric Company
Lone Star Gas Company

Patricia A. Hammick
Senior Vice President
Strategy and Communications
Columbia Energy Group

Charles E. Shultz
Chairman and
Chief Executive Officer
Dauntless Energy Inc.

Renze Hoeksema
Director of Public Policy and
Government Affairs
MCN Energy Group

Paul L. Kelly
Senior Vice President
Special Projects
Rowan Companies, Inc.

Matthew R. Simmons
President
Simmons and Company

^{*1} Replaced Claire S. Farley (October 1, 1999)

^{*2} Deceased (May 4, 1999)

**COORDINATING SUBCOMMITTEE'S
DATA INTEGRATION/REPORT WRITING TEAM**

LEADER

Rebecca B. Roberts
Strategic Partner
Global Alignment
Texaco Inc.

Edward J. Gilliard
Manager
Strategic Planning
Burlington Resources, Inc.

Mark H. LaCroix
Petroleum Engineer
DeGolyer and MacNaughton

Harvey L. Harmon
Manager
Strategy and Business Development
El Paso Gas Services Company

Blaise N. Poole
Manager
Strategy and Business Development
El Paso Gas Services Company

John S. Hull
Manager
Market Assessment & Economics
Texaco Natural Gas

Ross A. Rigler
Manager
Strategic Initiatives
Columbia Gulf Transmission

Wayne D. Johnson
Consultant

Paul L. Kelly
Senior Vice President
Special Projects
Rowan Companies, Inc.

Travis D. Stice
Regional Engineer
Corporate Operations
Burlington Resources, Inc.

NATIONAL PETROLEUM COUNCIL
DEMAND TASK GROUP
OF THE
NPC COMMITTEE ON NATURAL GAS

CHAIR

Matthew R. Simmons
President
Simmons and Company International

GOVERNMENT COCHAIR

James M. Kendell
Director, Oil and Gas Division
Office of Integrated Analysis and
Forecasting
Energy Information Administration
U.S. Department of Energy

SECRETARY

John H. Guy, IV
Deputy Executive Director
National Petroleum Council

* * *

Paul D. Holtberg
Group Manager
Baseline/Gas Resource
Analytical Center
Gas Research Institute

Wayne D. Johnson
Consultant

Charles W. Linderman
Director
Fossil Fuels and
Renewable Programs
Edison Electric Institute

Arthur L. Smith
Chairman
John S. Herold, Inc.

Paul Wilkinson
Vice President
Policy Analysis
American Gas Association

John C. Wolfmeyer
Senior Engineer
Corporate Planning/R&D
Duke Energy

NATIONAL PETROLEUM COUNCIL
TRANSMISSION AND DISTRIBUTION TASK GROUP
OF THE
NPC COMMITTEE ON NATURAL GAS

CHAIR

Susan B. Ortenstone
President
El Paso Gas Services Company

ASSISTANT TO THE CHAIR

Harvey L. Harmon
Manager
Strategy and Business Development
El Paso Gas Services Company

GOVERNMENT COCHAIR

Joan E. Heinkel
Director
Natural Gas Division
Data Analysis & Forecasting Branch
Energy Information Administration
U.S. Department of Energy

ASSISTANT TO THE CHAIR

Blaise N. Poole
Manager
Strategy and Business Development
El Paso Gas Services Company

SECRETARY

John H. Guy, IV
Deputy Executive Director
National Petroleum Council

* * *

Abigail L. Bailey
Manager, Regulatory Affairs
Texaco Natural Gas Company

R. Bruce Bridges
Vice President (Retired)
Planning & Administrative
Shell Midstream Enterprises, Inc.

Del S. Fischer
Director
Gas Transportation Planning
Shell Offshore Incorporated

Les A. Fyock
Director
Federal Regulatory Affairs
American Gas Association

Webster Gray
Technical Advisor
Office of Pipeline Regulation
Federal Energy Regulatory Commission

Mark R. Hanson
Planning Manager
Natural Gas Marketing
BP Amoco

Rita Hartfield
Manager
Competitive Analysis
Enron Corporation

Steve Harris
Managing Director
Asset Management
Dynergy Marketing and Trade

George C. Hass
Executive Director
Business Development
CMS Gas Transmission & Storage

TRANSMISSION AND DISTRIBUTION TASK GROUP

Peter Lagiovani
Natural Gas Analyst
Office of Fossil Energy, FE-33
U.S. Department of Energy

Lad P. Lorenz
Director
Capacity & Operational Planning
Southern California Gas Company

John D. Mantyh
Manager
Business Development
Florida Power & Light Company

L. Harold Milton
Analyst
Exxon Mobil Corporation

Richard O'Neill
Director
Office of Economic Policy
Federal Energy Regulatory Commission

Ross A. Rigler
Manager
Strategic Initiatives
Columbia Gulf Transmission

John Scarlata
General Manager
Public Service Electric & Gas Company

Skip Simmons
Project Leader
Natural Gas
Southern Company Energy Marketing

James F. Thomas
Senior Vice President
East Trading
Dynergy

Gregory Zwick
Director
Business Strategy
Trans Canada Pipelines

SPECIAL ASSISTANTS

Robert F. Keeling, Jr
Consultant
El Paso Natural Gas Company

Kyle Sawyer
Manager
Strategy and Business Development
El Paso Gas Services Company

NATIONAL PETROLEUM COUNCIL
SUPPLY TASK GROUP
OF THE
NPC COMMITTEE ON NATURAL GAS

CHAIR

Thomas B. Nusz
Vice President
Strategic Planning and Engineering
Burlington Resources, Inc.

ASSISTANT TO THE CHAIR

Edward J. Gilliard
Manager
Strategic Planning
Burlington Resources, Inc.

GOVERNMENT COCHAIR

Guido DeHoratiis
Director
Oil and Gas Upstream R&D
Office of Fossil Energy
U.S. Department of Energy

ASSISTANT TO THE CHAIR

Travis D. Stice
Regional Engineer
Corporate Operations
Burlington Resources, Inc.

SECRETARY

Robert L. Brown
Natural Gas Business Consultant

* * *

Robert Anderson
Deputy Associate Director for
Minerals, Realty and Resource
Protection
Bureau of Land Management
U.S. Department of the Interior

Kent A. Bowker
Senior Staff Geologist
Mid Continent Region
Mitchell Energy Corporation

David R. Cape, CPL
President
American Association of
Professional Landmen

Margaret M. Carson
Director
Strategy and Competitive Analysis
Enron Corp.

John C. Cochener
Principal Analyst, Resource Evaluation
Baseline Center
Gas Research Institute

Laurie M. Cramer
Director of Communications
Natural Gas Supply Association

Walter D. Cruickshank
Associate Director for Policy and
Management Improvement
MMS MS 4230
Minerals Management Service
U.S. Department of the Interior

Edward J. DiPaolo
Senior Vice President
Halliburton Energy Services

Robert J. Finley
Contractor, Z, Inc.
Manager of Reservoir Characterization
Energy Information Administration

James W. Hail, Jr.
Executive Vice President
DeGolyer and MacNaughton

SUPPLY TASK GROUP

John G. Hoffman
Engineering Manager
Deepwater Gulf of Mexico
BP Amoco, p.l.c.

John S. Hull
Manager
Market Assessment & Economics
Texaco Natural Gas

Mark H. LaCroix
Petroleum Engineer
DeGolyer and MacNaughton

Christopher B. McGill
Director of Gas Supply
and Transportation
American Gas Association

Bruce D. Thomas
Manager of Development
Halliburton Energy Services

Lonny H. Towell
Vice President of Acquisitions
Strategic Planning/Business Development
Kerr-McGee Corporation

Jeff P. Wahleithner
Manager
Strategic Growth
Shell E & P Company

Michael G. Webb
Senior Vice President
Strategic Planning/Business
Development
Kerr-McGee Corporation

John H. Wood
Director
Reserves and Production Division
U. S. Department of Energy

Appendix C

Historical Overview of Natural Gas Industry

Natural gas has been consumed as a fuel in this country since 1816, when gas manufactured from coal was used to illuminate the streets of Baltimore, Maryland. Consumers of gas in the 1800s burned gas produced or manufactured locally, as the technology to transport gas long distances did not yet exist. A national market, supplied by interstate pipeline transmissions systems, began to evolve in the 1920s with the development of seamless welded pipe. This technology allowed the long distance transportation of remote supplies of “natural” gas for which no market existed to markets previously served by more expensive manufactured gas or less desirable fuels, primarily coal. The gas market continued to evolve and grow over the next 50 years in spite of major wars, economic recessions, and regulatory enactments. Annual gas consumption grew from 2 trillion cubic feet (TCF) in 1930 to a level of 22 TCF in 1972.

Much of the growth in demand in the 1960s and early 1970s was driven by below-market prices attributable primarily to the artificially low field prices produced by federal regulation. Low field prices produced inadequate returns for producers, with the result that exploration and development fell off and supply declined. The resulting imbalance between supply and demand resulted in curtailment proceedings at the federal and state levels in which available supply was allocated among end-users. As a result of these proceedings, natural gas gained a reputation as an unreliable fuel. Subsequent deregulation of field prices produced a temporary price spike, which further dampened demand and produced the impression that gas was only available at a premium to market clearing prices. The passage of the Natural Gas Policy Act of 1978 (NGPA) and the opening of the nation’s gas transmission systems eventually produced a balance between supply and demand at market clearing prices.

Natural Gas Act of 1938

As already noted, the development of seamless welded pipe made the long-distance transmission of natural gas possible and allowed the large gas discoveries of the 1920s and 1930s to reach previously unserved interstate markets. The courts held that state regulatory agencies lacked power to regulate the rates and services of interstate pipelines. This upstream “regulatory gap” led to the passage of the Natural Gas Act in 1938. The Federal Power Commission (FPC, forerunner of the Federal Energy Regulatory Commission) quickly assumed jurisdiction over the rates and services of interstate pipelines and the issuance of certificates of public convenience and necessity to construct pipeline facilities.

The Phillips Decision

Because the FPC believed it lacked jurisdiction, it did not regulate the price of gas at the wellhead (field prices) in the years immediately following the passage of the Natural Gas Act. However, in *Phillips Petroleum Co. v. Wisconsin*, 347 U.S. 672 (1954), the Supreme Court ruled that the Natural Gas Act required regulation of the price of natural gas at the wellhead.

Since traditional cost-of-service regulation would have been administratively impossible for individual gas contracts, the FPC developed various schemes to establish field prices on a broader basis, including “in-line pricing,” “area prices,” and “vintaging.” The Commission unfortunately erred on the side of low prices. Field prices of gas sold into the unregulated intrastate market gradually rose above the price of newly contracted interstate gas and diverted supplies away from the interstate market. The effect of artificially low interstate gas prices stimulated demand, yet discouraged natural gas exploration activities. By the early 1970s, spot shortages of gas began to appear and industrial users became subject to frequent interruption. Gas was allocated to end-users in curtailment proceedings instead of by market forces. During the harsh winter of 1976–77, the artificially induced shortage became severe and gas deliveries

throughout the Northeast, Midwest, and Mid-Atlantic states were curtailed to varying degrees.

Natural Gas Policy Act of 1978

The emergency of the winter of 1976–77 produced a general consensus that legislative action was necessary to remedy natural gas shortages. With that consensus and against a backdrop of competing interests Congress produced a complex series of compromises that became the Natural Gas Policy Act of 1978.

The objective of the NGPA and its companion legislation, the Power Plant and Industrial Fuel Use Act, was to raise gas prices in order to encourage gas production while restricting its consumption by non-core market segments. Complete and immediate decontrol of wellhead prices was not achievable due to consuming states' concerns about the impact of a rapid price rise on their citizens. What passed was a "phased decontrol" of a complete array of different categories of gas. That decontrol is now complete, and restrictions on the use of gas for various purposes have been eliminated.

The higher prices for new gas that resulted from the passage of the NGPA were effective in increasing the exploration and production of natural gas. Interstate pipelines and local distribution companies (LDCs), inspired by memories of past shortages, quickly contracted for new supplies under pricing provisions that produced premium prices. The higher gas prices, however, discouraged demand. By the early 1980s, the cumulative effect of increased supply, demand erosion, end-use restrictions, and recession had turned a gas supply shortage into a gas supply surplus. A spot market consisting of new supplies developed and the spot price quickly fell below the weighted average cost of the mix of pipeline supplies. Industrial customers who could switch to alternative fuels did so, thus further depressing gas demand. Proposals to allow access to spot market gas to service industrial users who would otherwise switch to alternative fuels were proposed by the pipelines and approved by the Federal Energy Regulatory Commission (FERC) as "special marketing programs."

In the 1985 case of *Maryland People's Counsel v. FERC*, the D.C. Court of Appeals held that such preferential access to spot market gas was discriminatory and FERC was directed to respond by providing non-discriminatory access. Order 436, issued in October of 1985, required that pipelines provide non-discriminatory access to transportation systems and services. As pipelines began to transport spot gas for resale customers under this order, they displaced their own sales gas and their "take-or-pay" liabilities under existing contracts, already large, mushroomed.

FERC Orders 500 and 528

FERC Order 500 allowed pipelines to "direct bill" a portion (generally, 50%) of their take-or-pay costs to LDC customers on the basis of past purchase levels from the affected pipelines. With the possibility of at least partial recovery of "take-or-pay" costs, pipelines quickly entered into negotiations with producers to quantify those costs. As a result of these negotiations, above-market contracts were restructured or eliminated altogether in return (generally) for large, up-front cash payments. The D.C. Court of Appeals, after having first invalidated the "direct bill" provisions of Order 500 due to its retroactive nature, ultimately agreed to the substitute allocation method promulgated by FERC in Order 528.

FERC Orders 636, 636A, and 636B

FERC Orders 636, 636A, and 636B virtually eliminated the pipeline merchant functions and converted interstate pipelines into common carriers. Gas purchasing responsibilities were transferred to LDCs and direct purchasers. State regulators inherited the responsibility for regulatory oversight of gas purchasing practices. In turn, many state commissions have mandated transportation of gas by LDCs with the result that end-users can purchase gas directly from producers and arrange transportation through both pipelines and LDCs.

Natural gas is now sold to LDCs, various intermediaries, and a range of gas users by a large number of gas producers, independent marketers, marketing associations, storage companies, and the like. Pipelines and LDCs transport this gas between buyer and seller. In addition to cash markets, there is an active futures market on the New York Mercantile Exchange (NYMEX), and even longer term arrangements to buy or sell gas can be arranged privately through derivative instruments. In contrast with the distortions produced by the heavy regulatory hand of the past, it is generally recognized that the markets for gas—though volatile because of changing perceptions concerning weather, inventories, and other supply / demand factors—are both competitive and orderly.